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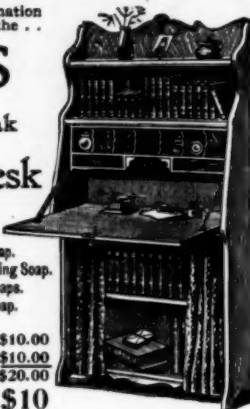
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Development of Character Through School Education.

By C. B. Gilbert.

The necessity of training youth to virtue is everywhere recognized. The importance of giving such training in the common schools is generally conceded. Most now admit tacitly, if not avowedly, that no other agency can be relied upon for the proper training of all citizens.

The church and the family, at their best man's two most sacred institutions, no longer sufficiently meet the needs of the youth. Comparatively few people come under the direct influence of the church. Some regard it with hostility, many with indifference. Whatever be the cause, it cannot be denied that there are large classes of people who receive no direct benefit from the labors of religious organizations.

The family, too, fails as the universal means for training the youth to virtue. How can it be otherwise? How can it be expected that families whose heads are not virtuous should train their children wisely? In too many instances home is the worst place in which children can be. More and more the public school is recognized as the only institution which can be utilized for the proper training of all children. Yet we must admit that here too **partial failure** has thus far attended all efforts. But the public school is an institution under control, and one that reaches practically all citizens; hence it may be made the desired agency, and will be, so soon as its office is universally recognized.

We are still bound by precedent; the public school as an institution for universal training of the youth, is still young. At first, and largely even at the present, it has been regarded as an institution for giving intelligence. The church and the home have been relied upon to supply the moral training; but intelligence is no longer regarded as a guarantee of integrity. The intelligent man, unless his character is sound, is simply more able to work evil than the unintelligent man. To give the child knowledge without giving him character is enlarging his possibilities for evil, as well as for good.

In general, there are three classes of opinion regarding the means by which virtue is to be inculcated through public schools. One class claim that the or-

inary school discipline and the ordinary school instruction necessarily inculcate virtue. It is pointed out that through school experience the children are made accustomed to law, to order, and are taught what are called the virtues of punctuality, and silence, and obedience. This may be readily admitted; but punctuality, silence, and obedience are not, necessarily, virtues at all. At best they are expedients whose use may spring from evil motives, as well as from good. They do not indicate character, nor does their possession assure good conduct in other directions. I do not think it can be denied that the ordinary school discipline, even if it is of a poor sort, is of great value; but, nevertheless, it is inadequate for the cultivation of character.

Another class go to the other extreme, and claim that definite moral instruction should constitute part of the daily school curriculum, that children should be given regular lessons in morals, as in geography and arithmetic, in order that they may be made intelligent upon ethical questions as they are upon other questions. This, undoubtedly, has value. Intelligence upon moral questions is an excellent thing, but it does not make character. We have been accustomed to rely too much upon definite technical instruction in morals. Preachment is not nearly so instrumental in training character as many think; indeed, I believe that the ordinary school discipline and curriculum are worth more in training character than specific moral instruction.

While such instruction, wisely given, has great value, it is hazardous to require the average teacher to give frequent lessons of an ethical sort, and at any rate, such instruction is only of partial value. At its best, it can only affect the externals of conduct—what people call morals.

A very wide distinction should be made between morals and character. Morals are superficial; character is fundamental. Many bad people have excellent morals. The genesis and evolution of morals are interesting. As everybody knows, morals—mores—are simply manners, conduct—are necessarily superficial, and change from time to time, and from place to place.

Good people in different ages and in different localities have had totally different standards of morals. The excellence of morals, as commonly viewed, depends upon their conformity to accepted standards. These standards are, in part, the product of the experience of the ages by which men have learned what course of conduct most tends to peace and general comfort. But, in part, morals depend upon existing conventionalities, ephemeral, often absurd. Our fathers did many things which we should regard as immoral. We do many things which they would have regarded as immoral, without in either case violating the prevailing

standard. We never regard the standard of morals as fixed, if we are thoughtful, and the good are quite as apt to be violators of old standards and introducers of new, as the bad.

It is, doubtless, well that people conform to prevailing moral standards if they have no better ones, but it is not enough; character is needed. Character is fundamental, self-directing, self-acting, controlled from within. Morals are external, obeying extraneous laws, changeable, expedient, conventional. Morals include but a part of life; character, the whole. It is all inclusive, all extensive. The perfection of morals is complete conformity to external standards, avoidance of criticism and friction. The perfection of character is inability to do what is wrong, which in God or man is not a limitation, but an evidence of power. Wrong is a weakening and disintegrating force, like disease. The strong character moves in its midst like the "Children in the Furnace." Such power comes not from formal instruction in morals, nor from conformity to any external standards, and yet such power is needed by the citizens of a free state. Such only is virtue.

Virtue consists in a completeness and perfection of being, whose aims, ambitions, purposes, and ideals all tend to one end. It includes knowledge, not knowledge of laws, proverbs, or formulas, but a comprehension of causes and relations. It embraces all of life, every thought, every act, so that resistance to evil is no more an effort than the oak's resistance of the zephyr. To such a character good deeds become nature, not supernatural, not artificial. The new birth of the Scripture is its type. All its streams of life flow in one direction. No act is unmoral. It may appear so, superficially, but every act derives a moral quality from the aim and spirit of the life.

Such character can be produced by no system of formal instruction; it must grow out of experience; but this experience must not be artificial.

With this point of view, I claim that character can be produced in school; not by the ordinary formal instruction and discipline, nor by technical moral instruction; but by introducing the child to a real, complete life, in which every activity tends to produce in him moral force, for every influence of environment, every occupation of mind; every activity of the body or soul enters into and becomes a part of the child's moral fiber. It cannot be otherwise. Our characters are the products of the whole of our living, and not of a part of it.

What traits must a good character possess? First, high ideals; second, clearness of judgment to determine between good and evil. This includes essential truth, which means the same, I suppose, as Dr. Harris' "moral insight," a grasp of relations, power to discern the real from the fictitious, the superficial. It is different from veracity; it is more than honesty, though it involves them both. It is such a constitution of the whole nature that the real appeals to it, appears lucid before it, and is in harmony with it. A good character possesses, third, taste, or appreciation of the good; fourth, a will, both strong and good.

How may these traits of a good character be developed in school? By making the school life as real to the child as the larger life is to the parent, by filling his time with those experiences which result in wisdom.

It is sometimes said that one generation stands upon

the shoulders of the preceding. If this were in every sense true, civilization would advance much more rapidly than it does. In a moral sense, it is not true at all. Intellectually, here and there, a soul standing upon the shoulders of the past, may, for a moment, catch a glimpse of a wider horizon; but we cannot stand on shoulders long. No generation, no man enters into the experience of the past. We grow by our own experience, and not by those of our ancestors. It is often said that, when we have acquired, through experience, wisdom enough to live, we die.

What one generation does for the following is to raise the sure foundation, a little, an inch; to create a little better environment than it itself enjoyed, so that the new generation shall gain a little better experience; only a little; not the experience of the past, not its failures, but the institutions it created, the spiritual atmosphere it produced are what benefit the future. The child of to-day is born into a world that is a little better than that found by the child of fifty years ago. The struggles and the mistakes through which this was produced are of the past, and he cannot enter into them. He must make his own.

Education proposes to create such an environment for the child that he shall gain daily, through experience, wisdom, so that he may live better than if he traveled through life unaided. In this, education is wise. Indeed, this is all it can do. School life is valuable to the child not chiefly for the definite instruction given, but for the character of the microcosm in which he is getting his experience. If it is rich, and broad, and real, if his time is devoted to search for essential truth, if he lives a life as genuine as the life of the adult, then he may really gain experience which will result in wisdom and character. This is more than is offered by the formal discipline of the school; more than is offered by its instruction, though it includes both.

If all life is a unit, and if every part of it partakes of the good or evil quality of the whole, school life, to be a preparation for it, must also be a unit, and every activity must be consciously directed toward wide, rich, and fruitful experiences such as may result in good character. I say, consciously,—this conscience is not entered into by the child. Most of those influences which form character are by him not directly felt. No school exercise is without its effect; the geography lesson, as much as the catechism, trains character; perhaps more.

Specifically, the school influences are the teacher, the curriculum, the method of instruction, and the mode of discipline. These are parts of the unit. I am to confine myself to the instruction. This necessarily includes, to a certain degree, the course of study. The method of discipline and the personality of the teacher are, perhaps, the greatest influences.

The value of a course of study in training the child consists in its fitness to produce breadth of view, clearness of judgment, nobility of ideals, love for the true and the beautiful, in general, to enrich and fructify the mind. It does not consist, to any considerable degree, in the definite information imparted. The subjects most valuable for all grades of school are those which have the richest content;—they are human history, literature, art, and nature. The child whose school life is devoted to the contemplation of these subjects inevitably receives moral elevation. If this contemplation

comes as a part of a school life whose discipline is wise, with a teacher whose personality is inspiring, school will have done for each child the utmost it can do toward the creation of character. Specifically, ideals, judgment, and taste must come from the contemplation of high things. This is too clear to need elucidation. A little about the will:

We are all aware of the old controversy between the Herbartians and the Hegelians regarding the character of the will; a controversy which has been renewed in many educational gatherings of recent years. I have no desire to discuss the extreme views of Hegel or Herbart; the one, apparently representing the will as absolutely supreme, uninfluenced by motive, uncontrolled except by itself; the other, apparently believing that the will is entirely the product of forces other than itself, desires environment, motives generally. The question is, Can the will be trained in strength and goodness? If it cannot, all attempts at character-development are futile. It is a fact which we all recognize when we do away with metaphysical terms and use common sense, that the will is influenced by motive; that, while it is supreme in one sense, in another it is controlled. We do what we want to do. What appeals to us as most desirable, thus controls our choice. We may have conflicting desires; we may want to do wrong; and we may choose, notwithstanding to do right, but, if we do, it is because, on the whole, right appeals to us as more desirable than wrong. The strong will is the one that is able to put aside obscuring views, and see clearly the right, and training of the will must consist largely in creating this power.

All that I have been advocating for the creation of ideals, for the training of judgment and taste is for the sake ultimately of influencing the action of the will. The riches of literature, history, art, and nature derive their chief value from their power to create motives which will guide the will in its action. This does not belittle the will; it is still supreme; but in order to choose, it must have motives. It cannot choose without.

Motives cannot be external; they must be internal. For this very reason the whole mind must be informed with thoughts which are noble and elevating. Its fiber must be so composed that the good will be the strongest motive. The will grows strong by experience; that is, each choice makes easier the next choice; hence, if during the period of school education the child's life can be so filled with ennobling influences that good shall be to him the strongest motive, and hence be habitually chosen, the will can safely be trusted.

There is, however, another class of subjects which constitutes, and must constitute a large portion of the curriculum of every elementary school. The formal studies,—the three R's—not only commonly constitute a great portion of the curriculum, but absorb and dominate it so that it may be said that in the average common school the time is devoted to learning to read, write, and compute; that all other studies are introduced as accessories and means to these, and that school education is supposed to be satisfactory, if the child has become proficient in these, and possibly a few other arts. If he can have incidentally acquired some breadth of view and some knowledge of the noble products of civilization some taste for the good, that is all very well; but that is not the essential thing. Just here is where our common schools break down, and here may be found the reasons why they do not produce such characters as I have outlined. The order is wrong.

The great broadening and enriching subjects should occupy the primary place, and the arts, so called, should be secondary. The difference in order is fundamental and essential. No art exists for itself. Art for art's sake is despicable. Arts receive their value from what they express.

I do not need to enlarge upon this. It will appeal at once to all; but I desire to call attention to this

point; placing the chief value upon the formal prevents the child from acquiring the correct notion of value. If the child, all through his school life, is taught to look upon the secondary as primary, if he struggles for perfection in form as such, without regard to the real end, how can we expect the adult to do any better?

Men devote their energies to acquiring that which is secondary. Money, power, social position, reputation are what they strive for most. When they sit down and think seriously about it, they admit that they are only secondary. Why do they struggle in this way? Why do we see men who have acquired a fortune, unable to use or enjoy it? It is because all their experiences during the time of education have been in the same line; the judgment of the superiority of the real over the superficial has not been wrought into their natures, on the contrary, by the daily experiences of school life, the judgment has been inwoven into their mental fiber, that life consists in the abundance of things possessed; that form is greater than substance; matter than spirit. No teacher will admit this in words, but we compel our children to live it. When reading, writing, and computing, with the other arts, are impressed upon children as the great end of education, and their daily life is devoted to them, without regard to the ends to which they must be put, we are simply drilling the child for an unsuccessful and unworthy life.

Remember that character consists in the wholeness of the life. An intelligent knowledge of moral distinctions and moral values, unless they are wrought into the being, and have become a part of its fiber, will not save men from following the lower, and it can only be wrought into the being when it becomes a daily, continuous experience; hence, what we must seek to do in school is to lead children to experience that which is noble.

The good, the true, and the beautiful are a trinity; the contemplation of one necessarily helps the others. Nothing is too good for the child. The best that civilization has produced is his by right. Literature, art, the wonders of nature, and the lessons of history belong to him. Through contemplation of them, his mind should grow. They should constitute the content of his course of study, and the form should be based upon and directed to them.

He should feel, when he is learning to write, it is that he may express the best thoughts in him for the good of man; and that he may feel this, he should at that moment be expressing the best thought that is in him. When he learns to read, he should feel that he is seeking for treasures; and that he may feel this, he should at that moment be seeking for treasures, not learning the forms of letters and words. When he is learning to compute, he should feel that it is to enable him to understand the form and extent of the beautiful world he lives in, not merely to add dollar to dollar. And that he may feel this, he should at that moment be acquiring some acquaintance with these higher things.

Thus his curriculum takes its proper place, and thus his experience becomes rich, and at the same time the inferior, the secondary, the form are better acquired, because the child realizes that they are for a high purpose. I cannot repeat too often that this is not done by telling him that it is so, but by leading him to see that each exercise leads to some high end.

Sometime or other, teachers will see that education is development, uniform, complete, and that the best results in every department are secured, if proper attention is paid to symmetry and harmony, that attempts to produce special effects, at the expense of symmetry, are violations of unity of nature, and tend to immorality.

Superintendent of Education,
Newark, N. J.

C.B. Guinn

First Three Years in Nature Study

By Clarence M. Meleney, Assistant Superintendent,
New York City.

The purpose of nature study in the elementary schools is to bring the children of the public schools as close as possible to nature, by opening up to them interesting fields for observation and study, and to call into activity and to develop each child's powers of acquisition and expression, by bringing him into relation with the natural elements of his environment, and affording opportunities for original individual investigations in such directions as his interests and his ability may lead.

SUBJECT MATTER.

The subjects selected for these studies are:

1. Studies of animals, beginning in grade I A, and extending through 3 A.
2. Studies of plants, from grade I A through 2 B, and in grade 3 B.
3. Natural phenomena, beginning in grade I B, through 3 B.
4. Earth study, in grades 2 B, 3 A, and 3 B.

CORRELATION.

It is suggested that in each grade the courses in nature study, in language, and in form, and drawing be placed side by side and compared. The following arrangement upon a card will exhibit the entire course in its correlation:

Grade	Nature Study	Language	Form and Drawing	Arith.
I A				
I B				
II A				
etc.				

By reading each column, the subject may be viewed in its progression—by reading across the card the correlation will be revealed. It will be noticed that the nature study, with the literature, furnishes the basis for all the language work, story telling, reading, composition, and spelling. The nature study and literature, with simple solids and the spectrum, constitute the basis for all the drawing, construction, clay, and color work.

METHOD.

The first study of these subjects in nature should be in the presence of the objects themselves; this may be followed by the use of good pictures, by the proper exercise of the imagination, and later by description, both oral and in text. The objects are to be observed as wholes, as to their parts, and as to their qualities, uses, and values. As the purpose is not to impart information, but to establish right habits of study, the extent and intensity of the work will depend upon the opportunities and the ability of the children. All the facts observed, and the judgments pronounced will be expressed by oral and written language, and by form and drawing. The sentences become reading and composition lessons. The freest and most original observations and descriptions are to be encouraged. No formal descriptions or technical terms, no analysis of parts and qualities are to be committed to memory.

PROGRESSION.

While there is a natural relation and inter-dependence between the several subjects in the nature study column, that is, between plants and animals; between animals, plants, and natural phenomena; between animals, plants, and earth study, and between natural phenomena and earth study, at the same time it will be observed, that in each of these subjects there is a gradual progression, from grade to grade, in this course, as the following suggestions will show:

ANIMALS

Each teacher is left free to choose such subjects as are available. It is not necessary that all teachers of each grade shall select the same subjects, nor is there a limit upon the number of animals to be studied. Circumstances may enable some teachers to select a goat for a subject, others, a rabbit, or a squirrel, and, perhaps still others, an elephant. All teachers are wise and discreet enough to select the best. The "must" is wholly eliminated from this course; the "may" brings the whole world to the teacher's feet. The teacher is not the slave of the course; the course is but the gateway to an intensely interesting course of study.

In grade I A the subjects are to be taken as wholes the life aspect being predominant. Any interesting facts may be mentioned, any characteristics suggested by the children, if true, are to be accepted. At this stage the child is to be the discoverer and narrator; the teacher is not to give instruction, except in satisfying the enquiring minds. Anecdotes and fables should be carefully chosen; pointless, made-up stories should be avoided.

In grade I B the animal's bone and family, and the relation of the animal to man is another step in the study of the live animal. The study of parts that characterize or identify the animal is the first step in the study of parts. At the same time, the inculcation of kindness will counteract the tendency to regard the animal as merely "a specimen."

In grade II A the life of the animal in relation to his food, his house building, and other activities is taken up. A study of the parts is continued, with reference to his life activities.

In grade II B the animal, as a type, is introduced and his relation to wild animals (originally all were wild). A comparison of animals, or of the corresponding parts of animals may here be taken up, as the difference between a cat and a dog; a goat and a sheep; a cow and a horse; a horse and a mule; an elephant and a rhinoceros. The difference between the feet of a cat and a dog; a rabbit and a squirrel; a camel and a horse. The adaptation of these parts to the creature's needs may be noted; and as suggested under natural phenomena, in the same grade the adaptation of the animal to weather and climate. After these studies which have tended gradually to direct the children to closer observation, the elements of comparison have been brought to their attention and they are ready to begin a system of simple classification, which is taken up in

Grade III A—There is no limit to the animals that may now be taken up. Care must be observed that each animal be positively known. Avoid all classification in names without clear knowledge. There are enough available pictures in books and on charts. In the use of pictures, be careful to represent comparative sizes of animals. The development or metamorphosis of the animal is another interesting subject; so also is the migration and hibernation of animals.

PLANTS.

The same progression will be observed in a careful reading of the course in plant study from grade to grade. The same latitude is allowed the teacher. The selection of plants is immaterial; whatever comes to hand and presents the best features for study should be chosen:

In grade I A flowers, fruits, and, and vegetables are the most interesting, as well as the most available material.

In grade I B the whole plant and its essential parts, its growth, and the parts of fruit are suggested.

In grade II A attention is called to plants in various forms, as trees, grass, etc.; to their growth, their conditions of growth, and the functions of parts of plants.

In grade II B the dependence upon conditions

and the plant industry is introduced. This correlates with the natural phenomena and earth study in the same grade.

The plant study is omitted in grade 3 A and taken again in grade 3 B, because the time has arrived for the more intensive study of a subject, and for the exclusion of others. Here attention is directed to the cultivation of plants for food and other values, and to their dependence upon seasons. The collection and mounting of specimens is recommended, and the study of parts of typical flowers is commenced in this grade. The schools that are situated near the parks will find abundance of work in the study of trees; those at a distance may have flowers sent to them; all pupils of this grade are old enough to make excursions and collect an endless amount of specimens of plants and plant products.

NATURAL PHENOMENA.

The course in this study is of the very simplest kind: In grade I B the attention of the children will be called to the sun, day and night, wind, rain, and snow when these can be seen. In the next grade the changes in the form of water, occasioned by heat and cold, and the varying states of the weather will be observed.

In grade II B temperature changes, as indicated by the thermometer, and as experienced by the children, and the seasons of the year will furnish good material for lessons.

In grade III A closer observation of the sun during the term, and its effects upon air and moisture, and in Grade III. B the use of weather records is advised.

Here may be studied the effect of weather and climate upon animals and plants, and upon mankind:

EARTH STUDY.

This is the beginning of study of geology and geography:

In grade II B rocks in various forms, as stones, gravel, loam, etc., are taken up; also the action of water on surface in wearing and moving portions of the earth.

In grade III A the earth surface as to form, slope, etc., and the water moving on the surface, and acting upon it will furnish a fine field of observation. This comprehends all the geographical forms within range of the child's observation, and

In grade III B the local forms in New York and vicinity are taken up. With this comes the outline of geographical forms of land and water. The cultivation of soil, and relation of surface to cultivation is a simple subject. Having formed the concepts of land and water forms, the globe is introduced to teach the earth as a whole, and the land and water masses that constitute its surface.

REFERENCES AND AIDS.

The "Catalogue of Books for Public School Libraries" contains the titles of many helpful books for teachers on these subjects, and very many books suitable for supplementary reading. It is hoped that the teachers of New York will make this course their own, and that they will search for the helps that may be found. It is better for the teacher to work this out in her own way than to have all the details mentioned and all the outlines prepared. It is believed that they have sufficient knowledge and good sense to do this work in an intelligent and comprehensive manner. No greater opportunity could be afforded for teachers to advance upon a broader stage of professional activity than the opening of the doors to all the realms of knowledge by an inviting course of study. The teachers are to have access to all the aids necessary, and they may expect the cordial appreciation and ready co-operation of the superintendents and supervisors.

Among the many good books adopted by the board of education are the following:

SCH. CATALOGUE NOS.	AUTHOR.	TITLE.
372-20	Poulsson	In the Child's World
372-20	Hopkins	Observation Lessons in the Primary School
500-11	Jackman	Nature Studies

500-19
500-18
500-14-15
580-1
590-9
590-17
590-34
580-1 A
58-16-17
580-18-19
635-1

372-9
590-8
590-11
590-26
500-12
500-17
500-21
520-1
580-7-8-8 A

Payne
Ford
Baas
Davis
Rich
Beyer
Newell

Brown
Strong
Frye
Bamford
Frye
Manton
Kelley
Silver Burdette

Ball
Hall

Nature Study
Nature's By Ways
Little Nature Studies
Plant Life
Animal Life
Animals Tame and Wild
Natural History Object Lessons
Glimpses of the Plant World
Lessons in Botany
Readers in Botany
Familiar Animals and Wild Kindred
The Plant Baby, etc.
All the Year Round.—3 vols.
Child and Nature
Up and Down the Brook
Brooks and Brook Basins
Insects
Introduction to Leaves, etc.
Nature in Verse
Short Stories in Nature
Star Land
Little Flower Folks

Simple Experiments in Physics.

For Pupils of Grammar Grade.

PROPERTIES OF MATTER.

Experiment 1: (Glass, water, crayon.) Fill the glass to the brim with water; then drop in a large piece of crayon.

Observation: Part of the water runs out of the glass.

The water had filled the glass; but when I dropped in the crayon, part of the water was forced out of its place, because the crayon occupied this space.

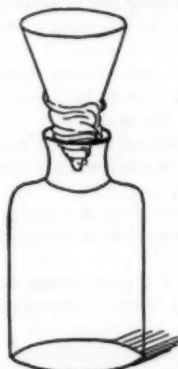
Experiment 2: (A pneumatic trough or any similar glass vessel, a bottle, water.) a. Fill the trough about nine-tenths full of water, and immerse it in the bottle, in an inverted position.

Observation: No water flows into the bottle.

The air which is confined in the bottle occupies space. It fills the bottle, just as the water did. Since, however, no air can escape from the bottle, nothing else can enter; hence no water flows into the bottle.

b. Immerse the bottle again vertically, and not too deep. Now incline it sideways.

Observation: Bubbles of air rise from the bottle, and water enters in their place. The presence of the air prevents the water entering the bottle.



Experiment 3: (A flask, funnel, water, blotting paper.)

Adjust the funnel tightly to the empty flask. Should it not be air-tight, wrap it with blotting paper until it is perfectly firm. Then pour water into the funnel.

Observation: No water enters the flask. Knowing the result of experiment 2, the children will be in a position to find for themselves the explanation of this last phenomenon. They can also suggest what must now be done, in order that the water may flow into the bottle.

We have now seen, that not only solid and liquid, but also gas occupies space. Then since air occupies space, we consider it matter. Hence it is said that "all matter occupies space and is impenetrable"; that is, the space which is occupied by one mass cannot, at the same time, be occupied by another.

Experiment 4: (Crayon.)

Divide the crayon into two pieces with a knife, and subdivide these pieces.

Observation: The chalk is divisible. Every body can be thus divided; only some bodies are divided easily; others only with difficulty; or, as we commonly say, there are hard and soft bodies.

Experiment 5: (Glass with water, common salt.)

Throw some grains of salt into the water.

Observation: The salt disappears in the water after a short time. We say the salt has dissolved in the water. In every smallest particle of water a particle of salt is found, which can be proved by tasting.

Experiment 6: (Petroleum, paper.)

Sprinkle some drops of petroleum on the paper, and carry it to different parts of the room.

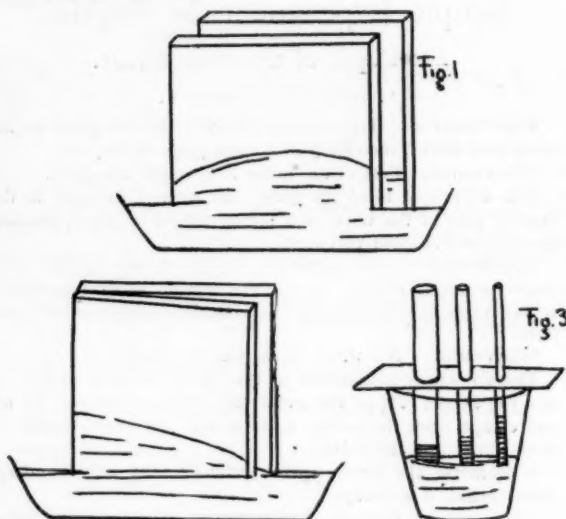
Observation: The petroleum sends out a strong smell.

Since we can smell the petroleum only when it takes effect on the nerve of smell in our noses, it must have been distributed through the air, as the salt was through the water. The petroleum has dissolved in the air, it has passed off in vapor, it has evaporated.

The force which holds the individual particles of a body or bodies together is called adhesion.* When the crayon was divided, this adhesion expended itself as resistance. This resistance is greater in solid bodies than in liquids, while in gaseous bodies it is very small.

The resistance and the adhesive power of wood can be seen by breaking a stick. The stick breaks with more or less difficulty, and the edges, instead of being smooth like those of the crayon that was cut, are ragged.

Experiment 7: (Glass tubes of different widths, glass vessel filled with water.)



a. Dip a wide glass tube in the water.

Observation: The water stands as high in the tube as in the vessel; but it stands somewhat higher at the sides of the tube than in the middle.

b. Now dip successively, narrower glass tubes in the water.

Observation: In narrow tubes the water stands higher than in the vessel, and is higher, the narrower the tube.

That the water stands higher at the sides of the tube than in the middle is an effect of adhesion. The glass walls attract the water and hold it up.

Experiment: Stand two plates of window glass in a shallow dish of water so that they shall be close together at one edge, but separated at the other.

Observation: The water is highest at the edge where the plates are together, but becomes gradually lower as the plates are farther apart.

Experiment 8: (Blotting paper, white sugar, water.)

Dip a small piece of blotting paper by one end in water, and lay the other end over the edge of the vessel. Then hold a small piece of white sugar over the water, so that one end touches it.

Observation: The water rises quickly in the sugar, but very gradually in the blotting paper, until it has penetrated the whole piece. Tubes as fine as the pores in blotting paper and sugar, are called hair tubes. The attraction acting in hair tubes is only another form of adhesion. Very many phenomena depend on this. Blotting paper absorbs ink; walls become wet in the spring from contact with the wet ground; a towel, with one end dipped in water, becomes completely wet.

Experiment 9: (Sponge, water.)

Dip the dry sponge in the water, and take it out again.

Observation: 1. The water has penetrated the sponge.

2. The sponge has become somewhat larger, thicker.

That the water has really penetrated the sponge is, however,

only apparent; for, as can be seen, there are very many small openings in the sponge, which fill with water. These openings are called pores. The sponge has become thicker, because the little tubes, as they were filled with water, expanded, and so pressed their walls out.

Experiment 10: (Quartz, sandstone, writing paper, blotting paper, water.)

Place these substances simultaneously in water, and after a short time take them out also simultaneously and examine them.

Observation: The blotting paper is entirely penetrated by the water, the writing paper and sandstone are partly so, and the quartz scarcely at all. If the pores are large, the water penetrates the body quickly; if they are very small, it enters very gradually.

*NOTE.—The distinction made between cohesion and adhesion was so arbitrary that one word is being used for both the attraction of like and unlike molecules.

Breathing Exercises.

Dr. John L. Davis, of California, in an article published in Hall's "Journal of Health," suggests the following exercises as of great value in developing the lungs:

Standing as erect as possible, with shoulders thrown back and chest forward, the arms hanging close to the body, the head up, with lips firmly closed, inhalation is to be taken as slowly as may be; at the same time the extended arms are to be gradually raised, the back of the hands upward, until they closely approach each other above the head. The movement should be so regulated that the arms will be extended directly over the head at the moment the lungs are completely filled. This position should be maintained from five to thirty seconds before the reverse process is begun. As the arms are gradually lowered, the breath is exhaled slowly, so that the lungs shall be as nearly freed from breath as possible at the time the arms again reach the first position at the side.

By these movements the greatest expansion possible is reached, for upon inspiration the weight of the shoulders and pectoral muscles are lifted, allowing the thorax to expand fully, while upon exhalation, in lowering the arms, we utilize the additional force of the pressure upon the upper thorax to render expiration as complete as possible.

These deep respirations should be repeated five or six times, and the exercise gone through with several times a day.

It is hardly necessary to remark that the clothing must in no way interfere with the exercise.

In some cases this exercise is more advantageous when taken lying flat on the back, instead of standing. In this position the inspiratory muscles become rapidly strengthened by opposing the additional pressure exerted by the abdominal organs against the expanding lungs. And, on the other hand, expiration is more perfect and full on account of the pressure of these organs.

This is an exercise now advocated by several leading vocal teachers of Europe.

A Writing "Wrinkle."

To bring up the ordinary writing in exercise books to the standard of the copy-book work, the following plan was adopted: The head lines were cut from a few copy books; these formed handy slips about six inches by one inch, and each pupil received one. The slip was to be retained in the exercise book. Every line of writing in the exercise book was now written underneath this model copy, which was moved down the page as the writing progressed. By this means a constant standard for comparison was kept in close view. Size, scope, shape, etc., of the pupil's writing were thus brought into immediate contrast with the printed slip. Constant supervision and comparison speedily wrought a change for the better, and the results bear witness to the efficacy of the plan.

Vertical Writing.

By E. W. Cavins, Chicago University.

This is the first of a series of articles which have for their purpose to outline and give suggestions upon a course of vertical writing for intermediate and advanced pupils in graded and ungraded schools. It will be an extension of the course in the Illinois State Course of Study, revised in the spring of 1897. The same copies will be used to illustrate the work.

Two questions are always vital to the teacher: What shall I teach, and how shall I teach it? In learning to write, it is not so difficult to discern the *what* as the *how*. It is my purpose to deal more particularly with the latter. Alice Freeman Palmer had graduated from college with high honors, and had begun teaching school. Within the first term, in a moment of distraction, she said to a friend, who was an excellent teacher: "There are the fractions, and I know them; there are the children. Now what am I going to do about it?"

The most fundamental question concerning penmanship is one of movement. Should forearm, or finger movement, be made the basis of school instruction? This is important, because its answer determines, to a considerable extent, the method of procedure. Authorities on the subject agree that forearm movement is the better. But unquestionably it is more difficult to teach and to learn.

Can a teacher teach forearm movement successfully who cannot write it himself? What think you? I have seen so many lamentable failures in teaching it, made by those who could not write it, that I am reluctant to recommend it to such teachers. Movement is a subtle thing to teach, and usually its difficulties will not be understood by teachers who have had no experience in learning it; moreover, they cannot give the inspiration of a good example, hence, will be preaching what they do not practice. The method set forth in these articles is for forearm movement only, and should not be undertaken with finger movement.

MATERIALS.

One copy book for the entire year, good ink, pen that will not scratch, straight holder, penwiper, blotter, practice paper—foolscap cut in sheets about the size of the copy book, in which they should be kept—and blackboard. Use copy books more for their copies than for their writing space. Refer frequently to the copies, and study forms of letters and words, even when the writing is done on the board or practice paper. If the teacher writes well, copy books may be dispensed with; if not, each pupil needs one, and one that contains at least some movement exercises.

POSITION.

The body, directly facing the desk, should be erect, with no twist in the spinal column. Pupils should not lean against the desk in front.

The paper, according to most authorities on vertical writing, should be straight in front and even with the middle of the body. But when it is so placed, and the arm turns on the muscle forward of the elbow for a pivot (as it should in using muscular movement), it is difficult to follow the line; the writing tends to diverge upward from it. To obviate this difficulty, either turn the top of the paper a little to the left or move the paper far enough to the right that the left edge of the paper will coincide with the medial line of the body. In the first case, turn the top of the paper but little to the left, since the turned position has a tendency to produce slant.

The arms should be kept near the body, which is not possible if the desk is too high; they should be supported by the desk, which is not possible if it is too low. The fleshy part of the forearms should rest on the desk. This requires that the paper be kept far enough from the body.

PEN-HOLDING.

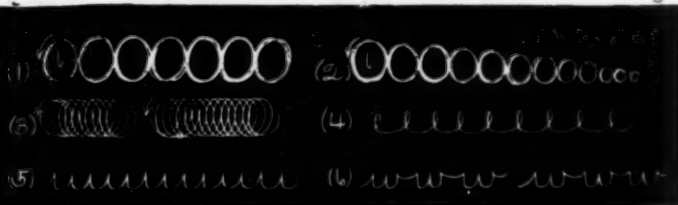
1. Take the pen naturally between the thumb and the first and second fingers. The forefinger should be on top of the holder, the end of the thumb against one side, and the corner of the nail of the second finger against the other.
2. Draw the third and fourth fingers back under the palm of the hand.
3. Subject the wrist to no strain or twist, but keep it straight. Keep it up from the paper or desk always, and do this by resting the hand on the joint nearest the end of the little finger.

4. The penholder should point toward the elbow. If the end of the thumb holds the holder in its place, up against the forefinger, and if the wrist is straight, without turn or twist, such a position for the penholder will probably be a natural one. The hand should not be turned to the left so far that the writer cannot see the letters as he makes them, without turning the head. It may be observed that a change in the position of the penholder produces a change in the slant of the letters.

MOVEMENT.

With the left hand, take hold of the muscle of the right forearm, move it forward and backward, and from side to side on the bone. You see that it is pliable, and will allow enough movement to reach the scope of ordinary capitals, without sliding on the desk. This action is called muscular (or forearm) movement. It may be acquired by a course of training on movement exercises, and simple letters, not in a few weeks, or a term, but, possibly, during a school year. Do not expect results too soon. Drill for speed and for skill. Advance little and review much.

Try first to get free movement, then to control it. For a few days at the beginning of each lesson train the arm to a



free action before taking the pen. Writing is a habit. Habits are formed by repetition.

Begin on the traced oval (Ex. 1). Go in the direction indicated by the arrow, trace six times, and write ovals tangent. Use care as to (1) verticality, (2) shape, (3) tracing, (4) smooth lines. Teach but one point at a time. Adopt Paul's text, "This one thing I do."

Strike out boldly and rapidly. Movement will be awkward and results discouraging at first. Work hopefully on and skill will surely come. Move the arm and pen together. The arm rolls on the muscle, the hand glides on the joint near the end of the little finger. Movement should be not only free and easy, but rapid. Make from twenty to thirty of these ovals, from 120 to 180 revolutions per minute. Movements should have force and freedom, but the "touch" should be light.

Movement should not be spasmodic; it may be regulated by counting 1, 2, 3, 4, 5, 6 for each oval.

Criticise yourself frequently. Apply such questions as: Is my position good? Is my movement pure forearm, free, lively, and regular? Is the touch light, and the force of movement strong? Take up these questions, one at a time, and hold on to them till you can answer yes to each one.

Write the running oval (Ex. 3), compact; that is, strokes near together; try to write it even in every way and avoid slant.

An enormous amount of practice should be given to the traced and running ovals. Review them day after day.

Ex. 4. Write (1) vertically, (2) with uniform spaces between the letters, (3) with uniformity as to width of loops. Keep up the same easy, free, and rapid movement used on the ovals.

Ex. 5 is a valuable and an easy one. The elements in it—right curve and straight line—are much used in the alphabet. Write the word "little" and erase the tops of the l's and the t's which extend above the height of i. What you have left resembles Ex. 5. Does not skill in writing Ex. 5 serve one while writing "little," even though he does not recognize the exercise in the word? Learn this exercise, and you have the constituent elements in i, u, w, and t. Use care as to (1) verticality, (2) uniform spacing, (3) even turns at bottom. It may not be easy to make the turns at the bottom as broad as they should be. Give this point special attention, if necessary. One characteristic of vertical writing is broad, well-rounded letters. Write from four to six lines of foolscap per minute. Distribute three groups along a line. Review by writing traced or

running ovals over Ex. 5, thus economizing on paper. Develop along with the movement habits of order and system, by an orderly distribution of exercises over the page. Begin at the top and leave no margins.

Ex. 6. Write three letters in a group, four groups on a line, and from three to five lines per minute. The w has something in common with v and b. Shape the last part of w correctly, if at first it must be done carefully. Do this by stopping for an instant on the angle at the top of the last upward stroke. Proceed from the angle with a horizontal right curve. Avoid the common fault of making the last part of w too wide.

HOW TO PRACTICE.

With the form of the letters clearly in mind, criticise your work. Find your most grievous fault, and concentrate your efforts upon it. Since the form on paper is a picture of the movement that produced it, the cause of errors in the form may be found in the movement. A more regular motion, a quicker action, a slowing up of the movement, or a full swing may be what is needed to correct the error. In reasoning from effect to cause is where brains play their important part.

There remains another element to success, and that is a sticking to it—any particular form until a good habit is confirmed.

For the movement exercises of this course, Gideon Bixler's directions on "How to Practice" are thoroughly applicable, and since they cannot be condensed without detriment, I give them verbatim:

Your entire success depends on how you practice. Take the easiest exercises first. Fill whole pages with them, but you must do it very carefully. Give your entire attention to the work. Strike out boldly, as though you were not afraid; notice your mistakes as you proceed, then try to avoid them. Do not stop to take time to get discouraged; keep right on. Remember that it is through the mistakes that you learn, and you will make thousands of them. For a while your exercises will look like chicken tracks, but remember that you are working to get a good position, correct penholding, and a proper movement. After practicing twenty-four hours you will notice that every once in a while you will get some pretty good forms, though they may still be in the minority.

MISPRACTICE.

There is not so much in the arrangement of exercises as there is in practicing them correctly. There is generally but one right way of practicing, but there are a great many wrong ways. To practice and talk, or whistle, at the same time, is one wrong way; to practice while holding the pen wrong, is another wrong way; to draw the letters slowly is wrong also; to practice half the time and complain the other half is an ineffective way; to practice while thinking of something else, will do you little good; to practice without knowing the form you wish to make, is time lost; to practice a slow motion in order to learn a rapid one, is contrary to nature. Do not write all the time, but when you do write, give your entire attention to the work."

The Holiday Season.

By Amy C. Scammell.

With children, the holiday season ought to come as early as Nov. 1, and stay until long after January; a real feast of weeks.

Only a few years away, and no fires, except in the living room, were kindled before Thanksgiving. One might shiver in the chilly October evenings, but better so than the heresy of setting up stoves before the time. Now teachers can bring it to pass that as soon as nature's autumn fires on tree and bush burn low, the glows of glad anticipation shall warm the children's hearts, and radiate.

There is plenty of material all laid, and ready to light in every child-heart gratefulness, joy, responsiveness, and all the happy others.

"Just the morning to apply a Thanksgiving match and set the good-nature fires to blazing," thought a teacher, as her little dismals came dripping in, on one of November's naughtiest. "Poor things! it isn't safe for them to sit with damp spirits, and this wood fire won't dry them in all day."

But she knew what would. A rousing Thanksgiving story,

including the sleigh ride, the welcome at grandpa's, the turkey, with all its graces, and the always-to-be-remembered evening. Then, when she saw that their gladness was at flood-tide, she asked them to overflow on paper; to write all the things for which they felt thankful.

How the pencils flew, to keep pace with their gratitudes that came trooping up to be registered! A motley, but an honest crowd!

"I am thankful for papa, mamma, baby sister, sun, moon, home, and eggs, cows, Carlo, hens, and country."

"I am thankful for foods, clothes, for a good home, that I am not blind, nor deaf and dumb, for this beautiful world, that I am living, that I can work."

"I am glad that I am not poor, that Nero likes me, that I am what I am, I would not like to be little Kay (in Hans Andersen's story), I am glad I am not Jane. (The bad girl of the school.)"

"I am thankful that Mr. McKinley is president, that there is no war, that we are not so poor as city children, and I like flowers, and birds, and music, and everything."

And these were only a mite of the full heartgiving. No wonder that it was dreary without, since all the sunshine of the world was within!

Christmas! the supreme joy of the fortunate child, and too often the only rift in the wretchedness of the neglected home! Surely, it should not be a week's joy only, but a season's.

Christmas's coming may be early anticipated in the school-room, by teaching the children to prepare pretty, inexpensive, and easily-made gifts, by broadening their knowledge and their sympathies in the countless ways which the true teacher has at her command, and by showing them how to adjust their little differences in the sweet Christmas spirit.

But songs, stories, talks, pictures, and devices must all be made alive by breathing into them the Christmas soul, or they avail little.

Perhaps we, teachers, need to be revived, before we have to give away of Christmas life.

Possibly we have pupils who need to be educated into sensibility and unselfish love.

It may do teacher and pupil alike good to visit together a home of want or of sorrow, and afterward a home where the Christmas spirit rules all the year round.

You remember studying about the army who were searching for hidden treasure, how their leader told them to turn up every stone, and they would surely find?

Do we, teachers, leave any stone unturned in our holiday preparations?

Not if we believe in co-operative teaching; not if we so enlist the home interest, that Christmas is breakfast talk, and the father and mother go to their work, planning.

Do we believe in school Christmas trees, which bear all manner of hearts' delights, the fruits of busiest brains, and hearts, and hands?

Of course we do. Haven't we proven that sitting up till ten, to dress dolls for little girls, and to make pinballs and penwipers for boys, yields us better dividends than does ever the working up of school devices for the morrow?

The teacher, in outlying districts, knows about neighborhood feuds. If she is strategic, she lays her plans in September, that Christmas good-will shall settle these troubles forever.

A sewing hour with the children on Saturday afternoons brings forth marvelous aprons, holders, scrap-bags, and comfort articles. And there must be two just alike for the two who are at variance.

Christmas rehearsals, held oftenest at the homes of the aggrieved parties, are long remembered as place meetings.

There's a long story to Christmas, if only the teacher knows how to make it.—New Years! Not the time for tearful retrospect with the children. They are too young and too free to carry the burden of old year's mistakes.

They want all the help they can have in building air-castles, where they may live through the long, happy new year.

How the teacher may help by suggesting beautiful possibilities to her little poets and romancers. She may keep New Year going from January to December in her school-room, if she is a true optimist. And every teacher ought to be.

The School Journal.

NEW YORK & CHICAGO.

WEEK ENDING OCTOBER 30, 1897.

The teacher must often feel a regret that his boys are to grow up and go out into the world where moral collision is most certain to happen, and oftentimes with fatal results. This year they are deep in history; in problems of interest, proportion, and gravitation; in drawing forms possessing a grace derived from a race and a country that played a wonderful part in ancient days. Next year they will mix with the adult population and press toward the unseen goal. He cannot be with them to tell them that half they read in the newspapers is a lie and the other half mainly worthless to them; nor that a vast part of what is said or done would better not have been; nor that a large part of what men struggle for will be of no use when gained. This is one of the vanities of vanity.

The editor of the Pontiac, Ill., "Pioneer" condemns the use of the term "compulsory education." He says: "You cannot 'compel' the education of any one, the statute does not require it. A bill introduced into the legislature to that effect would be the laughing stock of the session. We can compel their attendance on school which is all our compulsory school statutes enact. Whoever first introduced the term was ignorant and the educators who have adopted the habit of using it are, to say the least, exceedingly careless in violating their well-known and well-enforced rules of the proper use of terms in scholastic affairs. We would like to see the National Association of teachers adopt a rule to expel from that body any one of their members using the term hereafter."

A vast amount of nonsense has been written about 'overwork in school.' The most observant teachers say that they never knew of a case. A writer in an English magazine says that no young people are so driven by teachers as the children of the royal families; they learn several different languages; learn etiquette (which to them is a real study); learn about people of their country—necessarily a great deal; are made to take regular exercise; besides these many other things not in the usual course of study, and yet who ever hears of their breaking down? The breaking down talked about in the papers comes from the ignorance and thoughtlessness at home. How many parents of families are bringing up their children properly as to food, clothing, and general hygiene?

The "dull pupil"—what is to be done for him? It would be a good thing if a "dull pupil" could write a magazine article to tell what happened to him at school and what ought to have happened. The quick-witted get hold of the ideas and the mechanism of reading, writing, and figures, but the dull ones can only learn by rote, never comprehending the lessons, nor getting the relation of the facts told them to the life they are living. It is believed that a good teach-

er is to be defined as one who can reach the dull pupils, not the bright ones; those everywhere teach themselves.

One of the hard things to overcome during the past twenty-five years has been the entire want of interest of teachers in the conditions and events of the educational fields. That has commonly been explained by the fact that so many women are employed as teachers, but this does not meet the entire case. A principal of a city school said frankly, "I don't care a rap what they do in Philadelphia or Chicago." A certain old heathen rescued himself from forgetfulness by posterity by declaring that every thing concerning humanity interested him but he was a heathen, lived a long time ago, &c. The "coming teacher" will be as much interested in what is done educationally, elsewhere, as the botanist, scientist, mathematician, physiologist, and other thinking people are.

Student Government in 1817.

A most interesting experiment in education, as well as one of the earliest, was made by one Rowland Hill, when he was still a very young man. The "system" was nothing more nor less than a written constitution under which the boys governed themselves. This was in 1817, when he was only 22 years old. In a very few years these resolutions expanded in the hands of the boys into an elaborate and minutely detailed set of laws, which filled more than a hundred closely printed pages. Certain of the features of the system as described by Rowland Hill, are very interesting:

"Soon after midsummer (1816) I established a court of justice in the school. The judge is chosen monthly by the boys. The sheriff and the keeper of the records are chosen in the same manner. The attorney and the solicitor general are appointed by me. The judge appoints the inferior officers—as the clerk and crier of the court, the constables, etc. The jury consists of six boys chosen by ballot. * * * The sheriff keeps a book in which he enters all the sentences." The penalties imposed were "the forfeiture of marks, a certain number of which entitle a boy to a holiday." In this constitutional school was a chief magistrate, who, it is recorded, saves the masters "a deal of trouble," and actually "put a stop to a practice" which before it "had never been found possible to check—namely, that of throwing stones."



The late Professor Wilhelm Thierry Preyer, who died at Wiesbaden, Germany, July 15, 1897.

An Island School.

San Francisco, Cal.—A message came to the board of school directors one day this last summer, bearing the message: "Send us a school teacher for our little children and we will pay the salary and furnish board."

The message came from the South Farallon Island, which, though cut off from the California mainland by a broad belt of the sea, is still under the care of the same board of directors as San Francisco. There are eight little children on the island and two older ones. They are there because their parents



live on the island to maintain the lighthouse and siren kept as a warning and guide to sailors. It was for these ten children that the teacher was wanted from San Francisco. They have a room fitted up for school purposes, with desks, benches, blackboards, a supply of school books, a globe and a teacher's desk. As the children study their thoughts may occasionally be led to wander by the sight of a passing ocean steamer, but there are no parades, processions or concerts to divert their attention. The great holiday times for the children on the island are the four days a year when the United States government steamer comes with supplies. Besides the food, the coal, the oil and the other supplies necessary for the maintenance of the four families, the government supplies them with books. Every time the steamer comes it brings about forty books, taking to some other lighthouse tender the forty books left there three months before. This is a circulating library in the widest sense, since the books have traveled from one lighthouse station to another all up and down the Pacific coast.

The Truancy Problem.

Boston, Mass.—Chairman Samuel F. Hubbard, of the committee on truant officers, has submitted to the school board a carefully prepared report. Extracts from this report are as follows: Often the truant is 'more sinned against than sinning.' His home environment is such that he is afforded no opportunity to form those habits that are fundamental to good citizenship. Deprived of such advantages how can he be expected to acquire of himself, without suitable instruction and guidance, a proper esteem for himself and respect for others?

Here then arises the responsibility of the state or city to the child, its obligation to afford him an opportunity to achieve good citizenship, beyond the mere providing of free schools, rather than to seek an excuse to brand him as a criminal.

Truancy grows largely from lack of resource in expedients for arousing and holding the attention and interest of the child on the part of the teacher. An appeal to the rod should be a last resort. The best solvent of a perverse nature is love. The regular course of study must be followed, but the individuality, the tact, of the teacher must be exercised in her own way. Were all teachers equally gifted with the ability to understand, to sympathize with, and to direct the child, it seems clear that truancy would be reduced to a minimum.

A fruitful cause of absenteeism is the retention of pupils at home to take charge of the younger children of the family. In many cases the mother is obliged to support herself and family, in whole or in part, by day labor, and keeps an older child from school to care for the younger children during her necessary absences from home.

Truancy in Pittsburg.

Pittsburg, Pa.—At the second regular monthly meeting of the Principals' association, October 7, an open discussion was held on the new truant law. Prof. Samuel P. Andrews was the chairman, and Prof. H. W. Fisher made the preliminary remarks upon the neglect in carrying out the requirements of the law. The name, age, address and nationality of all children between eight and thirteen years of age were expected to appear on the register's reports, yet in one ward of 2,500 children only 1,294 names were enrolled. Mr. Fisher favored the empowering of truant officers with police privileges to enable them to arrest children between the ages of five and thirteen years found on the streets. He recommended that a truant school be established to relieve the industrious pupils and their teachers as much as to restrain the incorrigible ones. In the discussion that followed it was set forth that a truant school had been provided for by a new law, and a resolution was passed to establish two or more by the central board of education.

Scott's Rebecca.

Philadelphia, Pa.—The model for the Rebecca of Scott's

"Ivanhoe" was a young Jewish girl of this city named Rebecca Gratz. Washington Irving was an intimate friend of her family. When visiting Sir Walter Scott, Irving one day spoke of Miss Gratz, alluding to her beauty and devotion to the Jewish faith. Scott was so impressed that he planned the story of "Ivanhoe," naming the heroine Rebecca.

Western Reserve University.

Cleveland, O.—Western Reserve university opened the year with the largest attendance in its history. Adelbert college has between eighty and ninety new students, the college for women, between sixty and seventy, the law school, about sixty, while both the medical and dental colleges show an increased attendance. The graduate school has about forty enrolled. The whole number of new students in the university is about three hundred. The Young Men's Christian Association Building is almost completed, and was used for the first service of the association in the academic year. By winter it will be ready to receive the association permanently. The chemical laboratory of the medical college is to be used for the first time this year. The main building of the Adelbert college is being ornamented with a tower of stone. During the summer the gymnasium of Adelbert college was thoroughly overhauled, new lockers placed in it, and a new heating apparatus. In the college for women the attendance has grown so rapidly that it is expected a new dormitory for the women will be needed, and to supply this need, the college hopes soon to be able to erect a building for the purpose.

On the fifth of October ground was broken on the campus for the laboratory of biology. During the summer seventy-five thousand dollars was received on account of the Fayerweather bequest, from which Adelbert college had previously received fifty thousand dollars. This sum will be largely used to add to the permanent endowment of the college.

The Successor of General Walker.

Boston, Mass.—Prof. James M. Crafts, who is at the head of the chemistry department, Massachusetts institute of technology, has been elected president of the institute. Prof. Crafts has been acting president since the death of Gen. Walker and it is said that the faculty are unanimous in the belief that he is the most desirable man for the place. Among those who have been mentioned for the position are Gov. Wolcott, President Andrews, of Brown university, President M. C. Mendenhall, of the Worcester polytechnic institute, Prof. Sedgwick, of the institute of technology and Dr. H. P. Walcott, chairman of the state board of health.

Mr. Crafts was born in this city, in 1839. His mother was a granddaughter of Jeremiah Mason, the famous lawyer, and his father was a wealthy Boston merchant. He was graduated of Jeremiah Mason, the famous lawyer, and his father was a wealthy Boston merchant. He was graduated from the Lawrence scientific school in 1859, and spent two years studying chemistry in Germany, and four years studying medicine in the medical school connected with the University of Paris. Just before leaving Paris he was given the medal of the legion of honor by the French government.

In 1867 Mr. Crafts was appointed professor of chemistry in Cornell college. He left this position after two years, to become head of the chemical department of the institute. After two years of work he was compelled, by poor health, to resign. He went abroad, and from 1871 to 1892 he divided his work between the laboratories of this country and France. In 1892 he became professor of organic chemistry at the institute, and later head of the department.

Prof. Crafts is a corresponding member of the British Association for the Advancement of Science, and also of the National Academy of Sciences. He is the author of a short course in qualitative analysis, and of a series of papers on chemical and physical subjects.

Housekeeping Taught in School.

Chicago, Ill.—Lessons in the art of home-making have been started this fall in one of the public schools. Members of the Kitchen Garden Association have, for some time, been trying to obtain the consent of the board of education to the establishment of kitchen gardens in the schools. This year, upon the agreement of the association to pay for the equipment and provide teachers for one school the board decided to allow the experiment to be tried. The instruction consists of a series of songs, games and exercises designed to show the right and the wrong way of managing a home. Each little girl is provided with a white cap, white apron and a pair of white sleeve protectors reaching from wrist to elbow. These are folded at the close of each lesson and placed in pigeon holes of the huge lockers provided for the purpose. At present the classes are made up of seventh and eighth grade girls of the Kosminski school, where the work is done, together with classes from the Ray, the Fifty-fourth and the Kenwood schools.

The equipment for the new courses is exceptionally fine. The cooking-room has two tables placed near the center of the room with a space between them. At one end of this aisle is the teacher's desk, raised on a platform so as to overlook

the class. Each table is arranged to accommodate ten pupils. Gas jets burn under a stove made of strips of iron laid on two raised iron pipes extending the length of the table. Below the table are drawers, each containing a complete cooking outfit. After the fundamental principles of cooking are mastered, practical recipes are used. Three recipes are tried at each lesson and these are written in a note book. The pupils are shown that accuracy in measurement is the secret of good cookery, and they are also taught the chemistry and physiology of cooking.

In the housekeeping class the girls are taught the proper temperature to maintain in living rooms, the building and care of fires, sweeping and dusting. For the lesson on table setting and serving a complete set of girls is required. One is the 'lady' at the head of the table—which is set with toy dishes—others may be guests, while still others are servants. At the next lesson the characters are changed so that each pupil has a chance to learn every part.

The study of the bed receives careful consideration. Care of the bedding is taught, with the airing of blankets and turning of mattresses. With the aid of a toy bed and a doll, the girls are taught to change the sheets on a sick bed. Washing and ironing are taught in all their details, each child being provided with a small laundry bag containing several articles of every day apparel upon which the little laundresses may practice.

Chicago's Principals' Meetings.

The first principals' meeting of the year was held in the Schiller theater, Saturday morning, October 9. Assistant Supt. Lewis discussed the public schools, taking as his text a remark made by a prominent citizen of Chicago that "Our public schools are rotten to the core." Mr. Lewis repudiated the statement but held that there are faults in our schools which give too much ground for such assertions. The denunciation seems to have been based on the fact that there is cheating done by pupils. Mr. Lewis believes that moral training does not receive the attention it should. We have progressed along certain lines, but perhaps in some other particulars we have fallen below the standard of a generation ago. Formerly the rod was a necessary adjunct of every school. Public sentiment demanded it. To-day it is banished. The order is just as good, while the spirit in the school is infinitely better. Still, when the rod went out, something worse came in. The fear of corporal punishment being removed, lying and cheating increased. However, the children have come to love and respect the school more. Mr. Lewis evidently believes that these vices are becoming less and that the sum total of good resulting from the banishment of corporal punishment far outweighs the evils.

Mr. Lewis placed much stress on the spirit of the school for teaching morals. It is not by lectures, nor by persistently combatting the evil that pupils are led to higher ideals of conduct. Rather by the cultivation of the good qualities may one develop correct ideas of living. Our standards are at fault. We measure scholarship and hardly anything else. Consequently, the pupils come to feel that scholarship is the one thing needful. Character building is neglected.

Conservatism in Education.

The first meeting of the George Howland club for the year was held in the Sherman House, Saturday, October 9. Asst. Supt. James Hannan made the principal address. His topic was "Conservatism in Education." Mr. Hannan believes that there is still too much despotism in the school-room—"benevolent despotism" as he styled it. That is, despotism with benevolence assumed.

The most surprising statement of the speaker, and one which justifies, perhaps, his assignment to the topic of the day, was that teachers are hired to teach reading, writing, arithmetic, and certain other branches, and it is their business to do that. The statutes of the state specify that these subjects be taught, and the teachers are employed for this purpose. The subjects, if properly taught, will tend to develop good citizenship. Any method which does not result in the better teaching of these subjects is unjustifiable. Mr. Hannan discussed somewhat the place of the school in society. He called attention to the fact that the child gets most of his experience outside of the school room. The teacher who forgets this and bases all his work on what is gotten in the school-room makes a grave mistake. Children who enter school at six are not idiots. They have a large fund of experience on which the wise teacher will draw. It is the business of the school to supplement this experience and to direct the child's activities along the most fruitful lines.

A New Course of Study.

A new course of study, or rather the old course revised, has been adopted and is being used as the basis of the present year's work. The most radical change is in the work of the first year. Here the privilege is given of doing much work in sense-training. Exercises for training the sight, hearing, touch, etc., are suggested. This work is expected to precede the learning to read, write, etc.; though it may be continued profitably after the regular work is taken up.

The Printing Press in Schools.

For some years the Normal school has used the printing

press for supplying the pupils with suitable reading matter. Last year, two or three of the grammar schools were provided with presses. The idea has met with great favor, and this year a large number of schools have either purchased presses or are considering the matter seriously. Not only is it expected that the press will prove of inestimable value in supplying reading matter, but of positive educational value to the pupils who do the work.

Chances for Evening Study in Philadelphia.

The advantages afforded to Philadelphians for evening study are so great that any teacher desirous of self-improvement has excellent opportunity. The Drexel institute has evening classes, extending through six months of the year, from October to March. Instruction is given in freehand drawing from the east; drawing from the antique; life modeling in clay; pen and ink work; architectural drawing; building; construction; design; interior decoration; wood carving. Free, public lectures are given on art, music, science, history, and literature from November to April.

At the school of industrial art instruction is given from October to April in freehand drawing, decoration painting, modeling, carving, and applied and architectural design. Saturday afternoon classes are held for the benefit of the teachers.

Classes are held Tuesday and Thursday evening, at the Franklin institute, in drawing, mechanical, architectural, and freehand. The course of lectures for this year will be made especially attractive and entertaining, by means of illustrations. A few of the subjects are: "Mexico and Its People," "The Everglades of Florida," "Astronomical Photography," "The Tools of the American Pioneer," "Transportation and Wealth," "Review of the Results of Recent Arctic Explorations," "Radiography." The list includes also lectures on purely technical subjects.

The Wagner institute adds to the value of its lecture system by pamphlet syllabuses of the subjects discussed, with test questions and references for home reading: "Engineering Materials," "Historical Geology," "History," "Magnetism and the Electric Current," "Chemistry," and chapters from the "Lives of Plants" are the subjects for this winter.

The series of lectures, under the auspices of the University Extension Society, begin Nov. 11, and continue until April 5. The following are some of the lecturers and their themes: "The Crusaders," Hilaire Belloc; "Representative Novelists and Short Story Writers," Bliss Perry; "Victorian Poets," Frederick H. Sykes; "City of Paris," Hilaire Belloc; "Old Italian Paintings," Prof. John C. Van Dyke; "The Great Composers," Thomas W. Surratt; "Nineteenth Century Literature; the Greater English Novelists," Clyde B. Furst; "American History," and "American Literature," by Robert Ellis Thompson. Information will be gladly given at the Association hall, Fifteenth and Sansom streets.

Temple college announces that "any person can study any subject at any hour convenient to the student, day or night." The various courses of the college include regular academic work, theological, law, scientific, medical, preparatory, business, kindergarten training, art, household science, physical training, music, millinery, dressmaking, nursing, telegraphy. In these departments are included more than seventy different studies open to choice, if full courses are not sought. In the evening department at present 119 classes are taught each week.

Obituary Notes.

Galesburg, Ill.—Dr. Newman Bateman, for seventeen years president of Knox college, died here Oct. 21. His death was the result of heart disease, and was very sudden.

Pres. Bateman was born in Cumberland county, New Jersey, in 1822. He came to Illinois in 1833. His opportunities for an education were very limited. When he entered upon his freshman year in Illinois college he possessed just \$2.50. He supported himself, unaided, through his entire college course.

In 1845 he opened a private school in St. Louis. He was later elected professor of mathematics in St. Charles college, Mo., where he remained until 1851, when he became principal of the Jacksonville public schools.

In 1854 he aided in the organization of the State Teachers' Association. He was for some time the principal editor of the "Illinois Teacher." With others, he began efforts which resulted in the establishment of the Normal university. In 1858 he became state superintendent of public instruction, to which office he was elected five times. He was made president of Knox college in 1874.

John Foster, professor emeritus of natural philosophy in Union college, Schenectady, N. Y., died October 19. Since his graduation in 1835, Prof. Foster has been connected with the college, first as tutor and then as adjunct professor, in 1883 becoming professor emeritus. His purchase of scientific apparatus for the college, from funds subscribed by graduates, raised the standard to that of some of the larger scientific schools in the country.

Examinations of Candidates for Principalships.

An examination of applicants for the New York city principals' eligible list for male, female and primary departments will be held at the office of superintendent of schools, 146 Grand street, on November 3, 5, and 8. The subjects are as follows: reading, spelling, English grammar, history of the United States, English literature, arithmetic, algebra through quadratic equations, plane geometry, descriptive astronomy, physics, physiology, drawing, music, geography, principles and methods of teaching, psychology, pedagogy, (including the history of education, the science and art of teaching, and school government) rhetoric, logic, civics and English literature.

Those who are not regular teachers in New York City and not college graduates must take all these subjects. Candidates must have had ten years successful experience in teaching.

John Jasper,
City Superintendent.

Items of Live Interest,

The occasion of the Princeton college celebration, Oct. 22, was of particular note, from the fact that among the speakers were Ex-President Cleveland and the earl of Aberdeen, governor-general of Canada. In the course of his remarks on the self-made man, Mr. Cleveland said: "Manifestly among the tools to be used in the construction of the best quality of our self-made man, education is vitally important. The old superstition concerning the close relationship between the greatness of the self-made man and meager educational advantages is fast disappearing, and parents are more generally convinced that the time and money involved in a college course for their children are not wasted."

The degree of doctor of laws was conferred upon Lord Aberdeen, who responded in a speech of thanks.

Pittsburg, Pa.—It is probable that a resolution will soon be passed by the central board of education, forbidding the employment, as teachers in the schools, of any but residents of the city. A member of the board, as reported in the "Telegraph," said: It seems that for some time past there has been a sort of a fad to employ instructors from other cities. Now, in my opinion, there are enough competent people right in Pittsburg to fill the places, and there is no necessity for going out of Pittsburg for our talent. I have talked with a number of central board people, and they all favor the idea of confining our favors to residents of this city. In the common schools there are quite a number of teachers who do not live in the city. Of course, the central board has nothing to do with them, but if we start the movement in relation to the high school, the ward schools will follow suit. If it be known that no one but residents of this city will be employed in the high school, then our own citizens will make application.

Philadelphia, Pa.—When Prin. William D. Rorer, of the girls' high school, presented the list of text and supplementary reading books, Victor Hugo's "Les Misérables" was included. The chairman of a committee of the board of education declared that the book was not proper for young ladies to read, and it was, accordingly, removed from the list. Mrs. Mary E. Mumford, the only woman who was a member of the committee, defended Hugo's work but her solitary protest was overruled.

Philadelphia, Pa.—At a special meeting of the girls' high school committee, held Oct. 21, it was decided that Victor Hugo's "Les Misérables" might be used by the students of the French class after all. The edition to be used is abridged from the celebrated work.

Morgantown, W. Va.—Hereafter the West Virginia university will be in continuous session. The year will be divided into four quarters, of twelve weeks each, and the only vacation will be one week at the end of each quarter. This will benefit young men and young women who cannot attend college, except in the summer. The first summer quarter will begin July 1, 1898.

Milwaukee, Wis.—Prior to last spring the rule with regard to the teaching of German in the public schools was that the language should be taught to all whose parents did not express a wish to the contrary. In accordance with the general feeling that this department was costing the city more than was necessary, the rule now is that only those children whose parents specially request the German shall receive this instruction. Contrary to expectation, the number studying German this fall is larger than ever before. Of the 32,921 children attending the schools 20,000 are studying German and the annual expense of this department amounts to \$50,000.

Jersey City, N. J.—The Jersey City evening schools opened Oct. 18, with a total attendance of 1,636. Sessions are held in schools Nos. 2, 3, 8, 11, 14, 21, and in the high school.

Supt. Gilbert, of Newark, addressed the Jersey City Teachers' Association at its regular monthly meeting, Wednesday afternoon, Oct. 20, on the subject, "The Worth While."

Mr. Charles S. Haskell, principal of the high school, has re-

signed, to take charge of grammar school No. 2, Brooklyn, Nov. 1. Previous to his appointment to the high school, about two years since, he was principal of school No. 14. Mr. Haskell will be greatly missed in Jersey City, on account of his progressive spirit and ability in educational matters.

Norfolk, Va.—A communication was received by the board of education a short time ago from members of the Woman's A.P.A., asking that the Bible be used in the public schools, that the national flag be flown over them and none but Protestant teachers be employed. Upon investigation it appeared that readings from the Bible were a part of the morning exercises in most of the schools.

Philadelphia, Pa.—The board of education asks for \$7,059,004 for school purposes in 1898. This is an increase of \$3,378,503 over this year, but of this \$3,301,500 is for permanent improvements. The sum of \$2,439,400 is asked for teachers' salaries.

The next meeting of the Illinois State Teachers' association will be held in Springfield, Dec. 28, 29 and 30, 1897.

Chicago, Ill.—The tenth educational conference of the high schools and academies affiliated with the University of Chicago was held October 15 and 16. The third Friday and Saturday of October have been made the permanent dates for the autumn conference.

Doylestown, Pa.—In the summer of 1894, Dr. Joseph Krauskopf, of Philadelphia, visited Russia to secure data regarding the condition of the Jews in that country. While there he observed the great zeal with which Jews pursued agriculture and on his return to America he proceeded to formulate plans for the institution of a farm school, which, though welcoming students regardless of creed, might satisfy the demand of Jews for opportunity to make a study of agriculture. The National Farm school was incorporated in 1896 and is situated in this town. The buildings are furnished and equipped and a master and matron, assisted by several instructors, are in charge. The school aims to be thoroughly practical, purposing to graduate students scientifically trained in agriculture, both as a science and a profession.

Washington, Pa.—The designs for the new buildings of the Female seminary were made by Miss Elise Mercur, of Pittsburg. Mrs. Clara Meade, of Chicago, is the contractor. The Pittsburg "Despatch" states that both these women show the same thoroughness and business energy that characterize successful men in similar callings.

Philadelphia, Pa.—A course of excellent lectures will be given this year by Pres. James MacAlister, of Drexel institute, on the "History of Books and Libraries," also on "Oxford University." The course of free public lectures covers a large range of subjects. Drexel institute is doing a grand work for students and teachers.

Woodstock, Vt.—The forty-eighth annual meeting of the State Teachers' Association met here with nearly 200 teachers present at the opening session. Prin. C. H. Morrill, of Bakersfield, presided. An address was made by Prin. Edward Ellery, of Saxtons River, whose subject was, "A Royal Road to learning." Prin. A. B. Crawford, of Bellows Falls, spoke on "The Sense of Perception in Education." Other speakers were: H. K. Whitaker, of Brattleboro, Supt. Kelley, of Hudson, Mass., and Prin. Johnson, of St. Johnsbury.

The officers elected for the coming year were: president, E. H. Whitehill, Woodstock; secretary and treasurer, F. E. Pritchard, Bradbury; executive committee, Supt. J. L. Alger, Bennington; Prin. D. Y. Comstock, St. Johnsbury, Prin. N. J. Whitehill, Montpelier.

Louisville, Ky.—The schools of this city have, for years, had only a forenoon session. This means that the children must do a large amount of school work at home. For children who devoted the afternoon to labor for their support, doing this work at night, has proved very difficult. The board attempted to remedy the difficulty by returning to the plan of two sessions, but the parents of the children who assist in their own support, and the more well-to-do parents, have made such bitter protests that the one-session plan will be retained.

Women are now admitted to the lectures of the faculty of philosophy in the Austrian universities. In Vienna a large proportion of the applications came from Russian women. There are two classes enrolled, ordinary, and extraordinary. The first must be natives of Austria, eighteen years of age, and hold a certificate from a school of the country. The second need not be Austrian subjects, but must have passed successfully the examinations of the Female Teachers' Training institution, or an equivalent, and agree to take not less than ten lectures a week.

The report of the school question in Manitoba has been delayed, but takes a favorable view of the settlement reached between the federal and local governments. This report states that "where interests differ, but do not clash, the church desires that there shall be harmony."

Geography and Civics.

The Glacier at Lyngenseidet.

By Mary Proctor, New York.

From Bosekop, we went to Lyngenseidet, and visited the quaint little village of Lyngen, nestling among the hills. The surrounding landscape is extremely picturesque, but the special features of interest are the snow-capped mountains. Wishing to climb one of these mountains, we walked two or three miles in its direction, stopping at a farm-house on the way, to get refreshments. We were treated with the greatest kindness, the Norwegians being noted for their hospitality, and even the little children vied with each other in presenting us with souvenirs of our visit, in the shape of sea-shells and lobster's claws, which they apparently regarded as treasure-trove.

Can words describe the glorious scenery on which we feasted our eyes that summer morning? How an artist would have revelled in depicting on canvas the rich blue of the sky, and the rugged mountains, rising abruptly from the fjord. Gray rocks intermingled with Alpine moss, and birch trees, clothed the mountain sides, while the summits were wreathed in gauzy clouds of mist and surmounted by glaciers sparkling in the sunlight. A transparent haze hung over the deep olive-green waters of the fjord below. As if vied with nature in adding to the harmony of the scene, fishermen's boats, of a rich, vandyke brown hue, and of the picturesque old Viking build, drifted past us, the fishermen engaged in the pleasant pastime of fishing. The shores of the fjord were lined by the greenest of green pastures, dotted here and there with quaint, little red-roofed cottages. Down precipitous cliffs leaped cascades, fed by ice fields hidden in the lofty mountains near by. These are grand, plunging torrents, conveying heavy volumes of foaming water, and one can find little in this part of the country more impressive.

Meanwhile the glacier toward which we had been hastening seemed as far away as ever, owing to the deceptive effects of the clear atmosphere; but we bravely continued on our way, knowing that we must come to it at last. We passed a thatched cottage, and, seeing a man at work, we made signs to him, giving him to understand that we wished to know the shortest way to the glacier. He showed us how to reach it, pointing to a path leading around the foot of the mountain; but this seemed such a long, circuitous route that we decided to take a short cut through the woods. By this time our party had dwindled from twelve to two, and we were determined to accomplish our self-imposed task. Such an experience we had, climbing over boulders, and under branches of trees, stepping across miniature, rippling brooks, and toiling patiently through a wood that seemed endless. We had been warned of snakes in the vicinity, but, fortunately for us, they refrained from making their presence known to us.

At last, we emerged from the wood, and found ourselves at a place midway between the foot of the mountain and the glacier above. Then the hard work began, the scramble through the woods being child's play, comparatively. The moraine was covered with sharp, jagged boulders, two or three feet in height, perched at impossible angles, and bidding defiance to ordinary shoes. We climbed a short distance, but the glacier seemed as far away as ever, while the roar of a mountain torrent sounded alarmingly near to our ears. A morass further added to our difficulties, and, deciding that "discretion was the better part of valor," we left the delectable mountain for the more delectable plain below. Slowly and carefully we retraced our steps, and, on arriving at the foot of the moraine, we hired a boat to take us to the end of the fjord, nearest the harbor. The boatman carefully spread his oil-coat for me to sit on, and assigned to me to take a place at the stern of the boat. As I stepped into it, he shook his head at the glacier, and then pointed at my shoes, as much as to say that they were not exactly right for mountain climbing. Then he rowed us to the

upper end of the fjord, while we gave ourselves up to the novelty of the experience. A rugged Norwegian fisherman as our guide, rowing us across the fjord, with the vari-colored pebbles glistening in its depths, we only needed a troll or two to complete the picture. Looking back at the glacier, we now saw clouds hovering over the summit of the mountain, and in a few moments the rain came down in torrents.

We were not the only ones in the party, however, intent on mountain climbing. Two young men in our party started out to explore mountains and glaciers, and as there was a report that bears had driven some people out of the woods a few days before, they took a small revolver with them, a stout knife, and a rope for mountain climbing. They did not expect to be absent long, but as hour after hour passed away, and they did not return, we naturally felt anxious, but dared not express our fear in words. At last the truants returned, and such a thrilling story they had to tell that I cannot do better than quote their own account.

"They had climbed high up a mountain, and wandered over an immense snowfield until the romance of their situation became a trifle monotonous. Seeing a glacier, with a very steep slope, they concluded that if they slid down it by easy stages they would land in the valley below. The descent was comparatively easy, and they slid gayly along. For about 600 feet they had what boys call a "picnic," when, to their horror, they saw, that at a short distance below them the glacier came to an end, and further progress in that direction meant destruction. They attempted to retrace the course they had traversed so swiftly and easily, but it was hard work. The greatest caution was necessary, lest they should lose their foothold and slip down—down into that yawning chasm below. The rope they had taken proved their salvation. Often they came to a slope, when, lying flat on the ground, one could push the other forward till he could clutch some projection in the ice and draw himself up. Then he would let down his rope to his companion below. Their fingers were soon numb and bleeding, and they felt weak from lack of food, and exhaustion from climbing. The vision of a horrible death appalled them if they looked behind, and their progress forward was distressingly slow. More than once they were tempted to give up and await a rescuing party to come to their aid. They had fired off one barrel of the revolver early in the day, to hear the echo. They now deliberated whether it was best to fire the remainder in rapid succession, but they decided to reserve their shots, as they were far from the ship, and it was doubtful if they could be heard. On the other hand, as no one knew in what direction they had gone, a search of days might be ineffectual. Finally they made another desperate effort, and, after a while, found the way growing easier. With torn garments and bleeding hands, but with joyful hearts, they stood on the summit of the glacier, and finally found their way back by a longer, but a safer route."

Testing Geography.

In testing the progress of the boys for whom I am personally responsible in their geographical studies, I make it a general practice to question from a blackboard map of my own construction. I have found that, with a somewhat bulky class, the bringing out of the children, one by one, to point out the various places on the map, leads to much disorganization, and, consequently, to some little difficulty in maintaining the discipline in a creditable condition. To obviate this decided drawback, I have been led to number each feature of interest on the test maps, making the figures sufficiently large to be seen by the whole of the class without any straining. By their use, I can test the boys quickly and readily, and without any leaving of places. I ask a boy, for instance, the locality of a certain place, and he instantly calls out its number; or I require to know what a certain number indicates, and am answered accordingly. In my hands the plan has answered admirably; hence I bring it to the notice of my fellow teachers for their benefit.

When and Where the Day Begins.

By Adelaide Clements, Washington, D. C.

It is a matter of very little concern to the majority of people at just what point or at just what instant the day puts in its appearance, so long as there is no interference with the calendar, and that Christmas and the other holidays come around at the appointed time. It is enough for them that the day begins and ends; further than this they do not trouble themselves.

It has been said that there once existed an ancient tribe who believed that day began when the sun stole forth from a mythical cavern in a mountain top; but some of the aspiring youth did not believe as their elders, and went and climbed to the top of the snow-covered mountains to see if they could find out where the sun came from; but no one would listen to what they had to say, and they finally lost their heads for their persistence in not believing as their elders did.

Fortunately, we have no such myths at this time, and if we wish to think that the sun does not first rise over the hilltops of our horizon, but that there are people to the east of us who see the sun before we do, and that they, in their turn, do not see it as soon as others still farther east, we are at perfect liberty to inquire, Where does the day begin? Where, for example, does the Fourth of July first make its appearance on earth? Of course every boy and girl in the United States knows that the Fourth of July begins at midnight following the third of July, and as there is a difference of sixty minutes between Washington and Chicago, the children in Washington fire their salute one hour before the children in Chicago. So as we go further west, the difference in time increases. For example, when it is midnight in Washington, Denver being to the west, and all places to the west have earlier time, since the sun gets to them later, would have ten o'clock or two hours before midnight; and at San Francisco, where it would be nine o'clock, the children would not begin their celebration of the Fourth until three hours after the children of Washington have begun.

Meridians of longitude are used for measuring time, and are represented on maps as imaginary lines extending from pole to pole on the earth's surface. Whenever the sun shines on one of these meridians it is noon at all places through which the line passes. We must be very careful not to confound this time with railroad or standard time; for standard time, which is very convenient, is arbitrary; the distance from one coast to the other being divided into four sections, each representing 15 degrees, or one hour of time difference. Whereas, according to real or actual time, every little town, village, and city throughout the United States has a different time, except those that happen to lie in the same meridian. The earth moves from west to east. Hence it is continually bringing a different meridian under the sun, and as each passes beneath it, the time of every place changes from noon to afternoon, and the farther away it travels, the later the time becomes, until it arrives at a time directly opposite the sun, when it is midnight. From this point the meridian begins to travel toward the sun to antemeridian until, after a journey of twenty-four hours, it again reaches the noon point, and so on until the end of time.

The earth's circumference is divided into 360 equal parts, called degrees, and the meridian which passes through the observatory at Greenwich, in London, is taken for the starting point for numbering these divisions of longitude. This meridian is known as longitude naught, and when we go in an easterly direction, which would have later time, because places to the east receive the sun first, say across Europe into Asia, we speak of being in so many degrees of east longitude; and when we travel to the west of longitude naught, as from Liverpool across the Atlantic to New York, which would give us earlier time, as places in the west receive the sun last, we speak of being in so many degrees of west longitude.

Each degree of longitude is equal to four minutes of time; hence every fifteen degrees are equal to one hour of time, so that when a meridian has passed beyond the sun for a distance of forty-five degrees, it is three o'clock in the afternoon at all places on that meridian, or nine o'clock in the morning, if the meridian has traveled far enough to reach the point directly beneath the sun.

Washington is 75 degrees west of Greenwich; hence it is five hours behind the time of London, because Washington is west of the meridian from which we reckon, and it passes the noon point that many hours ahead of longitude 75 degrees.

If the English children were in the habit of celebrating the anniversary of American Independence, they would begin eight hours in advance of their friends on the Pacific coast, for it is only four o'clock in the afternoon of July third in California when the bells are ringing in the Fourth in London. While this may seem unfair, that we, to whom belongs the exclusive right of celebrating this event, should not see the Fourth first, we can be consoled by the fact that the Russian, Turkish, and Chinese boys are hours ahead of the English boys.

When it is midnight of July third in London, longitude naught, we will find that in a place situated 30 degrees to the east it will be two o'clock in the morning of July Fourth. A place situated 45 degrees to the east will make it three o'clock in the morning; 60 degrees, four o'clock; 75 degrees, five o'clock in the morning, and so on. For every 15 degrees farther east we go it will be one hour later, so that when we reach 180 degrees east it will be exactly twelve hours later than in London, and on the other side of the earth, directly opposite longitude naught. Hence when it's midnight of July Fourth at London it is 12 o'clock noon of that day on longitude 180 degrees east.

What we call noon is reckoned by astronomers the beginning of the day. Now, if we start from London at longitude naught and travel to the west, we will find that for every 15 degrees we go it will be 1 hour earlier, until we have gone 180 degrees west, where it will be twelve hours earlier, or noon of July 3. Longitude 180 degrees west is the same as longitude 180 degrees east, it being the meeting point on the side of the earth directly opposite longitude naught; and here we find we have noon of two different days, at the same time, and on the same line. It is said that if a person stands across the line, one foot would be in the last second before noon of July Fourth, and the other in the last second before noon of July third; or in other words his feet would be twenty-four hours apart. The day, therefore, begins at longitude 180. This meridian which plays such an important part in our daily affairs is seldom crossed by human beings; for, starting at the north pole, it passes through the ice-bound country of the Arctic regions, down through Bering strait, and out into the great Pacific, where, after passing through two or three little islands, it loses itself in the icy seas of the north pole.

The Old School-House.

The school-house waits beside the road,
But closed are all its crumbling shutters,
And in its yard, by breezes sowed,
The thistle and the ragweed flutters.
And high above the blackboard gray,
Within convenient musty niches,
Are hidden from the light of day
A bunch of ancient birchen switches.
The spider spins his fragile web
Across the grimy window-glasses,
While day by day the slow weeks ebb,
And week by week the dull year passes.
Where now are those who gathered once
To taste the fruit of knowledge brought them?
Where now the scholar and the dunce,
And where the red-lipped maid who taught them?
Why, as they lived be sure they died,
Whatever else time's passing gave them,
Forgotten by all else beside,
Unless, indeed, my song shall save them.
The mice along the rafters squeak
Or gnaw the leaves of some old primer,
And loose-hung clapboards rasp and creak,
While fades the twilight dim and dimmer.
And so it stands from year to year,
Deserted—reminiscent mostly—
And, what with all that lingers near,
Sadder than death and quite as ghostly.

—Ernest McGaffey in October "Woman's Home Companion."



The Great Seal of the United States. (Exact size.)

The Young Citizen's Catechism.*

By Charles F. Dole.

(The following simple questions and answers are meant to suggest and illustrate the great principles which underlie "government by the people and for the people." It is hoped that the questions will thus help the teachers to interesting and profitable half hours of conversation with the pupils about subjects which concern every child's life.)

THE THINGS WHICH BELONG TO ALL OF US.

1. To whom does our school-house and all the other school-houses belong?

The school-houses belong to all the people—to our fathers and mothers, and to the children.

Ask the children to name as many things as they can which belong to all the people.

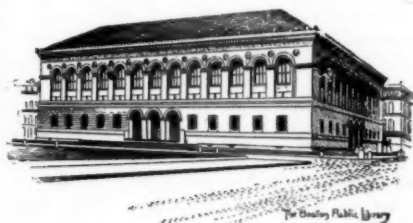
2. Who pays for the schools and all the rest of the common property?

The people pay the cost out of the labor of all.

3. What sort of care ought we to take of the things which we all own in common?

We ought to try to keep everything clean, tidy, and in order. We ought not to waste or destroy anything.

(Show the children in what ways they can help to take good care of our common property, for example, the school-houses and school-books, the streets, the sidewalks, the street lamps, the parks, etc.)



4. Why do all the people pay money to support schools and pay for teachers?

It is for the good of all that every one should have an education.

5. Why is it so important to educate the children?

So they may make good citizens and make our country safe.

WHO ARE CITIZENS.

6. Who are the citizens in America?

*Adapted from the *Young Citizen*, by Charles F. Dole. Copyrighted and issued by The Patriotic League, organized to proclaim the necessity for systematic instruction in citizenship, in the schools and out of them; to cultivate the knowledge of American principles, laws, history and progress, and to instill American ideas into the minds and hearts of Americans, native and adopted, of both sexes and all ages, sects and parties.—New York, 1897.

All the people who were born in the United States and foreign-born people who have been naturalized.

7. Why ought we to give strangers and foreigners a welcome to America?

Either we or our forefathers once came here as strangers.

(Tell the story of the Colonists, for instance, those who came over in the Mayflower, and of William Penn.)

PATRIOTS.

8. What sort of citizens do we need?

We need men and women who know how to earn their living.

9. Why?

When people do not earn their living, others have to work harder to support them.



10. What else do we need in good citizens?

We want our American citizens to be honest and fair.

11. What kind of children make fair and honest citizens?

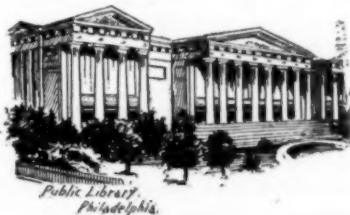
The children who are fair in their games and their trades with one another; the children who are unselfish, and tell the truth will make fair and honest citizens.

12. What else do we want in our American citizens?

We want kind and generous citizens; we want people who are willing to help one another.

13. What kind of children will make such citizens?

Kind, generous, and helpful children will make kind and generous citizens.



14. What great American can you name who was true, and honest, and kind, and generous when he was a boy?

George Washington.

(See what the children know about Washington. Tell them stories to illustrate what kind of boy and man he was.)

15. Name another great American citizen.

Abraham Lincoln.

(Help the children to see what a noble man Lincoln was.)

16. Name any good American citizen. Name any good and generous citizens who have lived in our city. Tell what they have done.

17. What do we call a good citizen who loves his country? We call him a patriot.

18. What do we mean by the word patriot?

We mean a person who loves his country with all his heart, and who tries to serve it.

19. Can children be patriots?

Yes, certainly, they can love their country with all their hearts; and they can help make it safe.

DANGERS TO OUR COUNTRY.

20. Is not our country very strong, and safe from all dangers?

America is very strong, but it is not altogether safe.

21. What dangers threaten our country?

There are ignorant citizens who hardly know how to do anything well. There are idle people who will not work, but who want others to support them. Such people are a danger to our country.

22. What harm do the ignorant and idle people do?

They do the same kind of harm to the country that lazy and ignorant boys do in a game of football. For example, suppose the boys who were so stupid as not to choose one of their best players for captain.

23. What other dangers are there beside the lazy and ignorant people?

Careless, wasteful, and extravagant people are dangerous; so are people who spend their money for intoxicating drinks.

24. Why are such people dangerous to our country?

Besides other reasons, they are apt to waste the people's money.

25. Is it right for people to waste their own money?

No. For the money comes out of the work and the skill of all. Whoever wastes it makes the country poorer.

(Show how a bad or wasteful habit, as, for instance, the cigarette habit weakens the strength and health. The nation wants strong men. Bad habits enfeeble its men and women.)

TRAITORS TO OUR COUNTRY.

26. What other very dangerous people are there besides the ignorant, idle, and wasteful?

There are some people who break the laws, injure their fellow citizens, or steal their property. Those also steal who get their wealth unfairly.

27. What harm do such people do to all of us?

They make our homes less safe. They compel all the rest of the people to work harder to make up for the harm they do.

28. How do we describe the people who break the laws of the land?

We call them mean and selfish.

29. What is the opposite of a patriot?

A traitor.

30. Who is a traitor?

One who betrays the honor or interests of his country.

(Tell the story of any traitor, as, for example, Benedict Arnold.)

31. What kind of children threaten to become traitors to our country?

Children who are false, mean, and selfish stand in danger of being traitors to our country.

THE PEOPLES OVER THE SEA.

32. Has our country any dangerous enemies besides bad citizens?

America, probably, has no dangerous enemies abroad.

33. What makes our country safe from harm from across the seas?

We are safe because we are strong, and we wish to do no harm to any other people. We wish to be friends with all men.

34. What is the kind of man whom we admire most?

We admire the man who is so strong that no one wants to fight with him, so just that every one respects him, and so kind that he does not want to hurt any one.

35. What kind of nation do we in America want to be?

We want to be strong, and fair, and friendly, all at the same time.

OUR WATCHMEN.

36. How many in the class know any of the policemen?

37. Who pay the policemen?

All the people have to pay for the police.

38. What kind of man makes a good policeman?

A strong, brave, watchful, honest, and faithful man.

39. Can you think of anything else that he should be?

He should be kind and good tempered.

40. Why should a policeman be brave? Why should he be honest and faithful?

Because he has to guard our lives, our homes, and our property.

41. Why should he be friendly and good tempered?

Because he has to take good care for women and for little children, and for those who are helpless.

42. May he be ugly to drunken and criminal people whom he arrests?



No. He must remember that "a man is a man for a' that."

43. Should we need any policemen if people did not get drunk and injure one another?

We should need very few.

OUR COURTS.

44. Where do the police take the people whom they arrest?

They lock them up in the station-house, in jail, or in prison.

45. What right may a man claim whom the police have arrested, before he can be locked up in prison?

He has a right to a fair and speedy "trial," to see if he is really guilty.

46. What is the place called where a man is "tried"?

He is tried in one of the courts.

47. Who is at the head of a court?

A judge.

48. What sort of a man ought the judge to be?

The judge ought to be a perfectly fair man.

49. Who helps the judge to get at the truth?

Lawyers and witnesses.

50. What sort of men ought these to be?

They ought to be truthful men.

51. Who decide at last whether the man ought to be punished?

A jury of twelve men ought to agree that the man is guilty before he can be punished. (In some cases the judge decides.)

52. What is required of the jurymen?

They must not decide against a man unless they are sure that he is guilty.

(The teacher can perhaps illustrate the forms of the trial in some simple case that arises among the children.)

(To be Continued.)

Coughs, colds, pneumonia and fevers may be prevented by keeping the blood pure and the system toned up with Hood's Sarsaparilla.

THE SCHOOL JOURNAL

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Literary Notes.

There will be nine numbers of the Riverside Literature Series issued during the present school year. The November number will be "Selections from the Tales and Poems of Edgar Allan Poe." It will contain several of his best known poems, and a few of the tales suitable for school-room use. It has been edited with great care by William P. Trent, professor of English and history at the University of the South, Sewanee, Tennessee, who has also furnished a very interesting introductory sketch.

Mr. Jonas Stadling, a Swedish journalist, accompanied Andree to Danes' island, from which place the aeronaut took his departure toward the pole. Mr. Stadling has written a paper on "Andree's Flight into the Unknown," which appears in the November "Century." Accompanying the article are a number of photographs of the scenes preparatory to the ascension, the final cutting of the ropes, and several views of the departing balloon, from near at hand to a distance of 12 kilometers, when it was nearly out of sight. Mr. Stadling was in charge of the carrier-pigeons until they were finally taken into the balloon.

A territory of 271,000 square miles, comprising Washington, Idaho, and Oregon as they are to-day, was saved to the Union by one man. He had the courage and heroism to ride on muleback for three thousand miles. The ride was thrilling, the trials and hardships marvelous, the result a glorious one. The whole story, beautifully illustrated, is given in the November issue of "The Ladies' Home Journal, under the title, "When Dr. Whitman Added Three Stars to Our Flag," the closing and most intensely interesting article in the "Journal's" successful series of "Great Personal Events." The first women to cross the Rockies figure in the story, which proves beyond a doubt that they preceded Fremont, the "Pathfinder," by six years.


The Baker & Taylor Co. announce the publication of the following books: "Sunlight and Shadow," a book for photographers, amateur and professional, edited by W. I. Lincoln Adams, illustrated by original photognaths from nature; "Fabius the Roman; or, How the Church Became Militant," by Rev. E. Fitch Burr, D. D., LL. D., a stirring story of the Roman Empire, depicting vividly the oppression and suffering of the Christians under the cruel emperor Maxentius, and "A Colonial

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Witch: Being a Study of the Black Art in the Colony of Connecticut," by Frank Samuel Child, a keen and sympathetic study of the social conditions which prevailed in Connecticut between the years 1640 and 1660.

Mr. John Adams, fellow of the College of Preceptors in London, and president of the Educational Institute of Scotland, has recently collected into a volume a series of educational essays under the title of "The Herbartian Psychology Applied to Education." The book is a practical and scholarly resume of the leading theories of education that have prevailed from the time of Plato to that of Tolstoi.

Dr. Emory R. Johnson, assistant professor of transportation and commerce at the University of Pennsylvania, is the author of a recent publication of the American Academy of Political and Social Science on "Current Transportation Topics," which explains clearly the recent decisions of the supreme court that apply to railways. The general subjects discussed are the power of the states to tax the transportation companies, the extent to which competing railways can co-operate by forming traffic associations and the like, and the power of the Interstate Commerce Commission to regulate railway rates.

"McClure's Magazine" for November contains three chapters from Mark Twain's forthcoming book on his recent journey round the world. They are the only portion that will be given to the public in advance of the book itself, and are said to have all of the old Mark Twain flavor, with something added.

The real builders of a nation are the builders of character and mind. The steady efforts of Bishop Spalding of Peoria in this regard deserve high praise, and still his good work goes on. His last production in this line is called "Thoughts and Theories of Life and Education," and is announced by A. C. McClurg & Co., of Chicago, for early publication.

G. P. Putnam's Sons announce Little Journeys to the Homes of Famous Women, described by Elbert Hubbard. The twelve monthly issues of the 1897 series will be published in volume form, printed on deckle-edged paper, uniform with the volumes previously issued in this series, with fourteen illustrations.

Henry Cabot Lodge's article in "Harper's Round Table" on "What a Primary Means" is distinctly timely. The American boy at election times is an ardent politician, and an article like this, which sets forth clearly the first principles on which our political system is built, affords very valuable as well as interesting reading.

At the recent celebration of Brooklyn Day at the Tennessee Centennial Exposition, Mrs. Margaret E. Sangster, editor of "Harper's Bazaar," an honored resident of Brooklyn, delivered the poem of the occasion at the special exercises in the Woman's building.

Neal Dow's First Temperance Work.

Neal Dow was twenty-five years old when he delivered his first temperance speech. It was at an anniversary supper of a fire company to which he belonged, and his strenuous opposition to the use of liquor was effective to that degree that the fire company adopted temperance as a principle. Later he prevailed upon the Maine Mechanics' Charitable Association to forego the use of wine at its annual dinner.

At that time liquor was almost universally used in Maine. One of the curious customs of Portland in those days was the ringing of the town bell at 11 and at four o'clock, by way of warning to mechanics that it was time to leave work and get a drink. This custom the young reformer succeeded in having abolished. Then he persuaded most of the Portland employers to discontinue supplying their men with liquor.

After his first successes, Neal Dow felt that temperance was the most important cause of the age. It was owing largely to his efforts that the Young Men's Total Abstinence Society of Portland was organized. Its first meeting, it is said, was held in the counting-room of a distillery.—"Harper's Weekly."

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Interesting Notes.

The "Coplas De Manrique."

That a new poet was coming, if not already come, was the belief of the readers of Longfellow's verse in the "Literary Gazette," who were better judges of the poetic outlook than we can be now. We cannot compare it, as they did, with the effusions of his forgotten contemporaries; if we could, we would be convinced of his superiority to the best of them,—to all of them, indeed, except Bryant. The literary condition of the country, which, if commonplace, was expectant, was favorable to the promise which was in him, and more than favorable to the promise which, eight years later, had ripened into performance, in his translation of the "Coplas de Manrique." We can read to-day, if we care to, all kinds of translations from all kinds of poets; not such colorless paraphrases as Pope's Homer, Dryden's Virgil, Fairfax's Tasso, Mickle's Lusiad, Cary's Dante, and so on, but translations, in the strict sense of the term, from the French, the Spanish, the Italian, the German, the Norwegian, the Arabic, the Persian, the Sanskrit,—in fact, from all languages and tongues and dialects in which poetry has been written and sung and said. It was otherwise with our American ancestors, to whom, sixty years ago, most literatures other than their own were a book shut up, a fountain sealed. Longfellow's translation of the "Coplas de Manrique" was the revelation to his countrymen of a noble poem, which must ever rank among the world's great funeral hymns, and the "Essay" which accompanied it introduced them to a knowledge of the moral and devotional poetry of Spain. To do this, as he did, was to add largely to their intellectual possessions.—R. H. Stoddard, in "Lippincott's."

Coal-Mining Under the Sea.

Coal is being mined under the sea on the north coast of the Spanish province of Asturias. A seam is being opened there which extends an unknown distance, the farthest yet reached being 660 feet. The mine is reached by a vertical shaft, the surface being sixty-five feet above the sea, and the pit bottom 185 feet below it. With the necessary machinery room after room is opened in succession, slices ten feet long are taken out, and when the full thickness of the seam has been removed the roof is made secure by building a dry stone wall from three to five feet thick against the pillar of coal left standing. The space behind is packed solid with loose stone, for timber is out of the question in such a thick seam. Each miner digs from two and one-half to three tons per day.

Routes to the Klondike.

Of the four overland routes, those by Chilkoot and White Passes are nearest the headwaters of the Lewes river, where passengers and freight take to the water highway; and the Chilkoot route is generally selected, because, though the pass is arduous climbing, the route is less interrupted by land portages, and the distance from the sea to the lakes where boats are launched is only twenty-seven miles. About a dozen miners every year lose their lives

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in the river rapids that carry them toward the Yukon at the rate of thirteen to fifteen miles an hour. The Canadians believe the White Pass, also called the Skagway, just east of Chilkoot, is the coming route; its grades are not so steep, and they say a wagon road or even a railroad may be carried across. In a year more we shall probably know how future gold-seekers are to reach the Yukon with least expense and hardship. The all-water route, by way of the Yukon's mouth, is not popular, because it is twice as costly, four times as long, and much of the short summer season has passed before the steamboat traveler reaches the gold fields.—"The Chautauquan" for October.

Vomiting of Pregnancy.

Robt. B. McCall, M. D., Medical College of Ohio, Cincinnati, now residing at Hamersville, Ohio, writes:—"My confidence in antikamnia is so well established that I have only words of praise. Independently of other observers, I have proved to my satisfaction its certain value as a promoter of parturition whether typical, delayed or complicated, and its effectiveness in controlling the vomiting of pregnancy. I have just finished treatment of an obstinate case of vomiting in pregnancy. A week ago, the first dose of antikamnia was given; nervous excitement, mental worry, and gastric intolerance rapidly yielded. The case was a typical one and the result is clearly attributable to the masterful influence of this preparation."

A Father of Royalties.

The king of Denmark, who is thirteen months older than Queen Victoria is the oldest reigning sovereign in Europe. Though the queen's senior in years, he has not reigned much more than half as long; but that is longer than all the others, including King Leopold, who only succeeded to the throne of Belgium in 1865—two years after Christian IX.'s accession. He has been a singularly tactful and prudent monarch, intensely beloved by his subjects, and carrying a weight in the counsels of Europe far greater than the mere size of the kingdom would justify. No family is so extensively allied with the Royal houses as his; the emperor of Russia is his grandson, the king of Greece his son, the heir to the English throne his son-in-law.

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Remarkable for its extremely light weight is the tulle gnat that frequents the tule marshes of the far West. It has a nearly microscopic body, but such a large spread of wings that it has the apparent size of a mosquito. These gnats will swarm around lights till they are a nuisance, and in some parts of California they are cleared away from lamps in masses. In a drug store in Lake county, of that state, a curious experiment was recently made. As many gnats were collected as could be heaped upon a pan of the apothecary's scales. The smallest weight in use to measure the most delicate drugs was then put upon the opposite pan and was found to overbalance the mountain of gnats. How enough muscular energy can be contained within such minute bodies to furnish power for such large wings is a matter that goes to the bottom of the mystery of life. Could man bring to his aid an engine as powerful as that in proportion to its weight the problem of air navigation would be solved at once.

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